

What is claimed is:

1. A system for anchoring a device to a lesion in the vasculature of a patient, which comprises:

5 a flexible member defining an axis and having an inner surface and an outer surface, wherein said outer surface is formed with a plurality of integral protuberances seamlessly interconnected therewith to project outwardly therefrom; and

10 a means for moving said member between a first configuration wherein said member is collapsed onto the axis and a second configuration wherein said member is made substantially rigid to embed said protuberances into the lesion and anchor the device to the lesion.

2. A system as recited in claim 1 wherein said member is tubular-shaped and has a first end and a second end, said system further comprising:

15 a first flexible enclosure integrally attached to said first end of said member and extending away therefrom in an axial direction; and

20 a second flexible enclosure integrally attached to said second end of said member and extending away therefrom in an axial direction, wherein said first enclosure and said second enclosure, in combination with said member, establish an inflatable balloon for the system.

3. A system as recited in claim 1 further comprising an inflatable balloon with said inner surface of said member bonded to said balloon for movement from the first configuration to the second configuration in response to an inflation of said balloon and for movement from the second configuration to the first configuration in response to a deflation of said balloon.

4. A system as recited in claim 3 wherein said member is ultrasonically bonded to said balloon.

5. A system as recited in claim 1 wherein said means for moving said member between the first configuration and the second configuration
5 comprises a fluid pump.

6. A system as recited in claim 1 wherein said protuberances are a plurality of raised ridges with said ridges oriented substantially parallel to the axis.

7. A system as recited in claim 6 wherein each said ridge extends
10 radially to an edge that is aligned substantially parallel to the axis.

8. A system as recited in claim 1 wherein said protuberances are a plurality of bumps.

9. A system as recited in claim 8 wherein said bumps are randomly arranged on said outer surface of said member.

15 10. A system as recited in claim 1 wherein said member and said protuberances are made of a same selected material.

11. A system for anchoring a device to a lesion in the vasculature of a patient, which comprises:

5 a flexible member defining an axis and having an inner surface and an outer surface, with said member having a plurality of protuberances projecting from said outer surface, wherein said member and said protuberances are seamlessly interconnected and are made of a same selected material; and

10 a means for moving said member between a first configuration, wherein said member is collapsed onto the axis, and a second configuration, wherein said member is substantially rigid and is distanced from the axis to project said protuberances radially away from the axis to embed said protuberances into the lesion and anchor the device to the lesion.

12. A system as recited in claim 11 wherein the selected material is
15 polyethylene terephthalate (PET).

13. A system as recited in claim 11 wherein said protuberances are a plurality of raised ridges with each said ridge extending to an edge that is aligned substantially parallel to the axis.

14. A method for manufacturing a system for anchoring a device to a lesion in the vasculature of a patient which comprises the steps of:

5 forming a flexible member having a wall and a plurality of protuberances, said wall seamlessly interconnecting said protuberances with each said protuberance projecting from said wall; and

10 configuring said flexible member for movement between an unexpanded configuration wherein said flexible member can be advanced within the vasculature and an expanded configuration to penetrate the lesion with the protuberances and embed the protuberances therein to anchor the device.

15 15. A method as recited in claim 14 wherein said forming step comprises the steps of:

15 extruding a feed material through a die to form an extrusion having a cylindrical shaped extrusion wall and a plurality of protuberances extending from said extrusion wall; and radially expanding said extrusion wall.

16. A method as recited in claim 15 wherein said step of radially expanding said extrusion wall is accomplished using a free-blow process.

20 17. A method as recited in claim 15 wherein said step of radially expanding said extrusion wall is accomplished using a blow-mold process.

18. A method as recited in claim 14 wherein said forming step comprises the steps of:

providing a mold having a mold surface that surrounds a mold cavity, said mold surface formed with a plurality of recesses;

5 placing a tube in said mold cavity; and

radially expanding said tube into contact with said mold surface.

19. A method as recited in claim 14 wherein said forming step comprises the steps of:

10 injection molding said flexible member wherein said wall is molded in the shape of a sheet; and

wrapping said wall around a cylindrical portion of an inflatable balloon.

20. A method as recited in claim 14 wherein said forming step comprises the steps of:

15 extruding said flexible member wherein said wall is extruded in the shape of a sheet; and

wrapping said wall around a cylindrical portion of an inflatable balloon.

21. A system for anchoring a device to a lesion in the vasculature of a patient, which comprises:

an elongated inflatable balloon defining an axis and having an outer surface;

5 a plurality of integral protuberances formed onto the outer surface of the balloon, and seamlessly interconnected therewith, to project outwardly therefrom; and

10 a fluid pump in fluid communication with said balloon for moving said balloon between a deflated configuration wherein said plurality of protuberances are substantially collapsed onto the axis and an inflated configuration wherein said balloon is made substantially rigid to embed said protuberances into the lesion and anchor the device to the lesion.

22. A system as recited in claim 21 wherein said protuberances are a plurality of raised ridges with said ridges oriented substantially parallel to the axis, and wherein each said ridge extends radially to an edge with the edge aligned substantially parallel to the axis.

23. A system as recited in claim 21 wherein said protuberances are a plurality of bumps and said bumps are randomly arranged on the outer surface of said balloon.